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AD HOC PANELS/WORKSHOPS TO EXAMINE SPECIFIC ISSUES OF SCIENCE AND TECHNOLOGY FOR DEVELOPMENT

Organization of ad hoc panels/workshops on specific issues of science and technology for development

Report of the Secretary-General

SUMMARY

The former Intergovernmental Committee on Science and Technology for Development relied on the advice of the Advisory Committee on Science and Technology for Development for specialized information concerning various aspects of science and technology, with particular emphasis on proposals for policy and endogenous capacity-building. During its existence, the Advisory Committee organized 14 ad hoc panels of specialists, drawing on its own members and other international experts, in order to best serve the Intergovernmental Committee in its advisory role. Those 14 panels covered a wide range of topics of high importance to developing and developed countries and, in many cases, provided the background documentation needed for consideration of major themes by the Intergovernmental Committee.

The Commission on Science and Technology for Development may wish to consider means of securing independent expert advice. In particular, the Commission may wish to continue the process of organizing up to two expert panels per year.

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I. BACKGROUND

1. In decision 1992/218 of 30 April 1992, the Economic and Social Council, recalling General Assembly resolution 46/235 of 13 April 1992 on the restructuring and revitalization of the United Nations in the economic, social and related fields, decided, inter alia, to establish a functional Commission on Science and Technology for Development.

2. The General Assembly, in paragraph 7 (a) (i) of the annex to its resolution 46/235, had proposed that such functional commission should examine at its first session the question of funding arrangements and the modalities for the convening of ad hoc panels/workshops which would meet inter-sessionally to examine specific issues of science and technology for development within the framework of General Assembly resolutions 34/218 of 19 December 1979 and 41/183 of 8 December 1986. In that connection, the Commission could consider the practice of the Advisory Committee on Science and Technology for Development.

3. The Intergovernmental Committee on Science and Technology for Development, in its resolution 7 (II) of 4 June 1980, had decided to establish an advisory body on science and technology for development. 1/ The terms of reference of the United Nations advisory body on science and technology for development had stated 2/ that the advisory body should have the access to the advice of ad hoc panels drawn from a roster of specialists in all the necessary disciplines, established by the advisory body as necessary, some of whose members should be drawn from the membership of the advisory body.

4. The Intergovernmental Committee, in resolution 3 (III), section IV, paragraph 4, of 5 June 1981, 3/ had recommended that the General Assembly should authorize the Advisory Committee to constitute a maximum of four ad hoc panels during the next two years in accordance with the terms of reference of the Advisory Committee, on the understanding that no more than two ad hoc panel meetings should be held each year and that those meetings should be of a duration of not more than one week.

5. Since then, the Advisory Committee on Science and Technology for Development had been authorized to hold two ad hoc panel meetings each year, the cost of which was reflected in the programme budget (section 18) 4/ of the former Centre for Science and Technology for Development of the United Nations Secretariat.

6. The Advisory Committee, at its plenary sessions, had decided on a specific topic, drawn up the terms of reference of each of the panels organized, and been represented by several of its members. The report of each panel, including its recommendations, was considered by the Advisory Committee at its session following the panels. The concluding discussion of the topic was reflected in the report of the Advisory Committee.

II. THE PANELS: AN OVERVIEW

7. The Advisory Committee convened its first ad hoc panel of specialists in 1982, and its last in 1990. During this eight-year period a total of 14 expert panels were organized, covering topics as varied as blending traditional and new technologies, and science and technology for drought and desertification. Some of the panels examined immediate problems (for example, food security), and others focused on long-term perspectives. They covered methodological issues (for example, measurement of the impact of science and technology) and institutional ones (for example, linkages among research, development and production). However, all of those panels had four crucial elements in common: they were directed towards development objectives; they were geared to policy-making; they were geared to endogenous capacity-building; and they helped to provide information for the discussions of the Intergovernmental Committee on Science and Technology for Development.

8. A brief overview of those 14 panels is given below. In many cases, the deliberations of the panels resulted in publications. Where this was the case, the publication has been cited. Where no publication is available, the document symbol of the panel report is provided.

9. Panel I was the Ad Hoc Panel of the Advisory Committee on Science and Technology for Development on Integrated Application of Emerging and Traditional Technologies for Development. It met at Los Baños, the Philippines, from 13 to 16 December 1982 (see document A/CN.11/AC.1/111/2).

10. The Panel examined possible ways of achieving a beneficial blend of emerging and traditional technologies for development. It pointed out that national policies for technology choice, development and diffusion should contain three major components. First, traditional industries that had social, economic, ecological or cultural advantages should be preserved and enriched further through the introduction of suitable quality control and marketing techniques. Second, emerging technologies that were directly related to the socio-economic conditions prevailing in a country should be adopted so that the country would be able to achieve quantum jumps in technological advances. Third, steps should be taken to promote suitable blends of emerging and traditional technologies based on a clear understanding of such blends. Recent advances in micro-electronics and microprocessors, biotechnology, satellite communications and imagery, and solar and renewable energy technology could be harnessed to upgrade traditional skills and occupations. The new era of innovations in high technology had induced a remarkable transformation of industrial technologies and production structures in the 1980s. Blending had the capacity to result in a move from centralized mass production to versatile, flexible small-scale production and decentralization and dispersal of industry to local areas.

11. The proceedings of this Panel were published in New Frontiers in Technology Application: Integration of Emerging and Traditional Technologies, Ernst U. von Weizsacker, M. S. Swaminathan and Aklilu Lemma, eds. (Dublin, Tycooly International Publishing, Ltd., 1983).

12. The Panel also led to a follow-up workshop of "Pioneer projects on the integration of emerging and traditional technologies" (held in Tokyo, Japan,

from 27 to 29 April 1984) which was sponsored by Japanese industries through the Japanese Association for Promotion of International Cooperation (APIC), Tokyo, to discuss specific proposals for pioneer projects for blending technologies. The report of this Workshop was published as Pioneer Projects on the Integration of Emerging and Traditional Technologies (Tokyo, APIC, 1984).

13. Panel II was the Ad Hoc Panel of Specialists of the Advisory Committee on Human Resources Development for the Planning, Management and Implementation of Science and Technology Programmes in Developing Countries, which met at Shuwáikh, Kuwait, from 8 to 11 January 1983.

14. As stated in the report of the Panel (A/CN.11/AC.1/III/3), one of the main bottlenecks to the application of science and technology to development was a general lack of managerial capacities in the developing countries. In the context of the Panel, this referred specifically to management of science and technology activities related to development. The Panel noted that while many elements of science and technology management principles and practices were generally valid for both developed and developing countries, critical differences lay in the fact that most developing countries were dependent on external sources for the choice, acquisition and transfer of technology; that institutional infrastructure was limited; and that resources were scarce.

15. The Panel examined obstacles and future action. Its emphasis on the need for a better understanding of individual national experiences in developing countries led to a follow-up interregional seminar, held in Moscow from 8 to 27 October 1984, on "Planning and management of science and technology for development: methods, prospects and trends", in which case-studies from 21 developing countries were discussed.

16. The results of the Moscow meeting were published in Trends and Prospects in Planning and Management of Science and Technology for Development, M. Anandakrishnan, ed. (Moscow, 1984).

17. Panel III was the Ad Hoc Panel of Specialists on the Role of Regional Associations and Organizations in Strengthening Research and Development and in the Popularization of Science and Technology in Developing Countries, which met at Tunis, Tunisia, from 6 to 10 April 1983.

18. As pointed out in the foreword to the report of the Panel (A/C.11/AC.1/IV/2), the strength of many of the non-governmental organizations and associations was unique by virtue of the involvement of a wide cross-section of development communities, including working scientists and technologists, policy makers, planners and the public at large, in their programmes and activities. Their resources, if properly mobilized, could be used to enhance the benefits of science and technology to the people at the grass-roots level, through such programmes as those relating to their education, environmental health and sanitation, economy, employment and energy needs. Such organizations in developing countries could become an indispensable part of the interactive development mechanism, particularly with respect to strengthening research and development, popularizing science and technology and providing information in the areas of policy-making and planning. The Panel outlined ways and means by which non-governmental organizations, particularly at the regional level, could assist in the strengthening of endogenous capacity-building.

19. The proceedings of the second and third panels were published jointly in Planning and Popularizing Science and Technology in Developing Countries, M. Anandakrishnan, ed. (Oxford, Tycooly Publishing, Ltd., 1985).

20. Panel IV was the Ad Hoc Panel of Experts on Science and Technology and Women, which met in South Hadley, Massachusetts, from 12 to 16 September 1983.

21. Women constitute approximately half the population in all countries, yet they have been systematically excluded from positions of power in policy-making for science and technology as well as in research and development. This has a strong negative effect, not only on women themselves, but also on the pace and the path of development. The Panel (see document A/C.11/AC.1/IV/4) examined the issues related to the participation of women in policy-making and decision-making; their contribution to endogenous research and development; their participation in education and communication in the areas of science and technology; and the selection, design and development of technologies that did not adversely affect women as well as those that might also assist them in their dual role of manager of the household and contributor to economic activity.

22. The results of the Panel were published in Science, Technology and Women: A World Perspective, Shirley M. Malcom and others, eds. (Washington, D.C., American Association for the Advancement of Science, in cooperation with the Centre for Science and Technology for Development of the United Nations Secretariat, 1985).

23. Panel V was the Ad Hoc Panel of Specialists on the Reinforcement of Linkages between Research and Development Activities and the Production System, which met in Lima, Peru, from 11 to 14 October 1983.

24. The Panel (see document A/CN.11/AC.1/IV/3 and Corr.1) explored ways to organize research and development programmes; create flexible and appropriate linkages to promote supplier-user interactions at national, regional and international levels; and design policy instruments to encourage and finance research and development. Three case-studies - from India (Hindustan Lever), Nigeria (commercial production of cassava), and Bolivia (commercialization of milk substitutes) - were discussed, and pioneer projects suggested in such areas as technological services delivery systems for small industries; a local technology system for rural areas; a fund-syndicating technology delivery system for enterprises and investors; linkages to improved productivity in underutilized capacity; and identification of needs in the least developed countries.

25. The proceedings of the Panel were published in Research and Development: Linkages to Production in Developing Countries, Mary Pat Williams Silveira, ed. (Boulder, Colorado, Westview Press, 1985).

26. Panel VI was the Ad Hoc Panel of Specialists on the Measurement of the Impact of Science and Technology on Development Objectives, held in Graz, Austria, from 2 to 7 May 1984.

27. Current indicators used to measure the effect of science and technology in developing countries had been formulated based on conditions and assumptions that were primarily relevant to developed countries. The Panel suggested that

those indicators, when applied to developing countries, often led to inaccurate conclusions (see document A/CN.11/AC.1/V/2). Speaking from their own experiences, the Panel members examined issues involved in assessing the effects of science and technology, and analysed the problems of constructing and applying accurate science and technology indicators relevant to developing countries. In addition to assessment and methodological questions, the work of the Panel included case-studies from Brazil and China.

28. The proceedings of the Panel were published in Science and Technology Indicators for Development, Hiroko Morita-Lou, ed. (Boulder, Colorado, Westview Press, 1985).

29. Panel VII was the Ad Hoc Panel of Specialists on Long-term Perspectives on Science and Technology for Development, which met in Mbabane, Swaziland, from 21 to 26 November 1984.

30. The Panel explored the interrelationship during the 1980s between changes and trends in the global economic, social and political environment, on the one hand, and those in science and technology on the other. While many developing countries had made important strides during the 1960s and 1970s towards building a basic scientific infrastructure and increasing their technological capabilities, the closer links between scientific capabilities, developments in technology and economic growth, the increasing costs of scientific research, the accelerating obsolescence of research capabilities, the emergence of new interdisciplinary fields, and the growing complexity of the institutional setting for the conduct of research were making it more difficult for most developing countries to push quickly towards the frontiers of knowledge and take advantage of new advances. At the same time, the slow-down in the rates of economic growth and other problems were undermining the long-term efforts required to build science and technology capabilities. The Panel explored new strategies for science and technology for development, the role of policy instruments to implement those strategies, and the importance of multilateral cooperation in such plans.

31. The material from the Panel was used as background information for the report of the Secretary-General (A/CN.11/62) on the mid-decade review of the implementation of the Vienna Programme of Action: progress at the regional level, presented to the Intergovernmental Committee on Science and Technology for Development at its seventh session.

32. The Panel report itself was issued as the Report of the Ad Hoc Panel of Specialists on Long-term Perspectives on Science and Technology for Development, organized in cooperation with the Royal Swaziland Society for Science and Technology and the University of Swaziland and with the support of the Government of Swaziland (A/CN.11/AC.1/V/3 and Corr.1).

33. Panel VIII was the Ad Hoc Panel of Specialists on Scientific and Technological Information Systems for Development, which met in Rome from 21 to 25 January 1985.

34. Thousands of scientific and technical publications of all kinds on a wide number of subjects are issued daily throughout the world, and the number is increasing dramatically. However, that information can be useful only if the

end-users for whom it is intended know of its existence and are prepared to use it. Unfortunately, this is often not the case for developing countries. The Panel examined the need in developing countries for the collection, processing, storage, retrieval and dissemination of scientific and technological information within national boundaries and through international channels. Particular emphasis was placed on the endogenous capacity-building required to perform these functions. This included an assessment of the need for a global network.

35. The work of the Panel and its report (A/CN.11/AC.1/V/4) formed the major content for discussion by the Intergovernmental Committee on Science and Technology for Development at its seventh session, for which the following substantive theme had been chosen: information systems for science and technology for development.

36. The proceedings of the Panel were also published in Scientific and Technological Information for Development (United Nations publication, Sales No. E.85.II.A.7).

37. Panel IX was the Ad Hoc Panel of Specialists on Mobilization of Financial Resources for Scientific and Technological Development in Developing Countries, which met in Islamabad, Pakistan, from 4 to 10 November 1985.

38. The Panel looked at human and financial resources from the perspective of their symbiotic relationship. That perspective was based on the underlying premise that either one was by itself of little value without the other. Resource mobilization for science and technology for development requires a direct, explicit and strategic approach. The Panel made specific proposals on a range of policy instruments designed to augment financial resources and to train and deploy skilled human resources more effectively towards endogenous scientific and technological development. The main emphasis was placed on national policies and sources of financing, but the role of external funds was also explored.

39. The report of the Panel (A/CN.11/AC.1/VI/3) formed the basis for discussions at the eighth session of the Intergovernmental Committee, which had chosen the mobilization of resources for science and technology for development for developing countries topic as one of the substantive themes for in-depth consideration at its eighth session. (See the report of the Secretary-General entitled "Substantive theme: mobilization of resources for science and technology for development for developing countries" (A/CN.11/70).)

40. Panel X was the Ad Hoc Panel of Specialists on Science, Technology and Food Security, which met in Harare, Zimbabwe, from 7 to 13 January 1986.

41. The central thrust of the panel discussion was to draw attention to the need for a food security strategy based on a food systems approach and oriented towards small and subsistence farmers. The concept of food systems refers to the whole complex of human and environmental interactions relating to food production, processing, exchange and consumption. It stresses feedback between component elements, is concerned with the place of food within the larger context of environmental resources and social contexts, and emphasizes the need to design, develop and elaborate systems that guarantee access to food by everyone.

42. The report of the Panel was issued as a document of the Advisory Committee (A/CN.11/AC.1/VI/2).

43. Panel XI was the Ad Hoc Group of Experts on Mobilization of Human Resources for Scientific and Technological Development in Developing Countries, which met in New York, from 29 to 31 January 1986.

44. The Panel discussed ways in which human resources - including not only scientists, engineers and the academic community, but also policy makers, administrators, industrialists, financiers, entrepreneurs, labour and the community at large - could be mobilized to work for development through institutions, organizations, and management practices. One important means of mobilization was the organization of a selected number of technology missions. Through such missions, human resources could be effectively and efficiently used. At the same time, people working in a team to achieve a specific objective were usually highly motivated and rewarded with a sense of accomplishment. The Panel also discussed a number of other means available for mobilization including national policies and plans.

45. The results of the Panel were issued as the Report of the Ad Hoc Group of Experts on Mobilization of Human Resources for Scientific and Technological Development in Developing Countries (A/CN.11/AC.1/VI/4).

46. Panel XII was the Ad Hoc Group of Experts on the Impact of New and Emerging Areas of Science and Technology on the Development of Developing Countries, which met at Buenos Aires, Argentina, from 8 to 12 December 1986.

47. This Panel reviewed the implications and impact of global technological developments in critical areas of science and technology, including micro-electronics and informatics, biotechnology and genetic engineering, new materials, and new and renewable sources of energy. It highlighted the need for integrated technology policies and planning to ensure effective absorption, blending and use of new technologies in the process of socio-economic development. Particular emphasis was placed on technology assessment and human resources development.

48. The report of the Panel (A/CN.11/AC.1/VII/2) was used as the basis for discussions at the ninth session of the Intergovernmental Committee, which had chosen the topic concerned, the impact of new and emerging areas of science and technology on the development of developing countries, as one of its substantive themes. (See the report of the Secretary-General entitled "Substantive theme: impact of new and emerging areas of science and technology on the development of developing countries" (A/CN.11/80).)

49. Panel XIII was the Expert Group on the Application of Science and Technology in the Study, Prevention, Monitoring and Combating of Drought and Desertification, which met at Ashkhabad, Union of Soviet Socialist Republics, from 13 to 16 January 1987.

50. In recent decades, and especially since the World Food Conference (1974) and the United Nations Conference on Desertification (1977), problems of drought and desertification have engaged national and international attention. A wealth of knowledge and several technological proposals for combating those problems

exist, but much of this has been biased towards isolated sectors, disciplines or technologies. It was the task of the Panel to review the available knowledge, and to suggest new approaches based on interdisciplinarity, as well as to compile a list of institutions and organizations that dealt with different aspects of drought and desertification from a scientific and technological point of view.

51. The report of this Panel (A/CN.11/AC.1/VII/3) formed the basis of discussions at the ninth session of the Intergovernmental Committee, which had chosen as one of its substantive themes the application of science and technology to the study, prevention, monitoring and combating of drought, desertification and other natural disasters.

52. Material connected with the results of the Panel appeared in the report of the Secretary-General (A/CN.11/79) entitled "Combating drought and desertification".

53. Panel XIV was the Panel of Experts on Technology Missions, which met in Warsaw, Poland, from 11 to 14 September 1990.

54. Based on discussions that had taken place during its regular plenary meeting, the Advisory Committee proposed that technology missions might provide an important means of furthering its work in endogenous capacity-building, sustainable development and international cooperation. The subject of such missions was also related to other important issues, such as technology blending, linkages between research and development and production, and innovation.

55. The Panel was therefore charged with the task of analysing the experiences in different countries in conducting various types of technology missions or their equivalent, of assessing their value, and of formulating guidelines for their use in other countries. Case-studies from seven geographical areas - India, Brazil, China, the Republic of Korea, Jamaica, West Africa and Italy - were examined.

56. The report of the Panel was issued as a document entitled "Core programme: report of the Panel of Experts on Technology Missions" (A/CN.11/AC.1/XI/2).

III. SUMMARY AND CONCLUSIONS

57. The ad hoc panels of specialists of the former Advisory Committee on Science and Technology for Development performed a number of critical functions. They assembled scores of the best experts from every region of the globe. They were able to focus on specific issues of immense importance to development. They provided seasoned, insightful, provocative material which was published in books and reports distributed throughout the world. Furthermore, they provided the specialized background material required for the substantive deliberation undertaken by the Intergovernmental Committee.

58. With the abolition of the Advisory Committee there is no longer a legislative authority to convene panels of specialists for the specific purpose of advising the new Commission on Science and Technology for Development.

59. In the context of establishing its working modalities, the Commission may therefore wish to consider convening a maximum of four ad hoc panels each biennium to advise it on specific topics.

60. The Commission may also with to consider the recommendation made at the Meeting of High-Level Experts on Science and Technology for Development, held at Bujumburo, Burundi, from 4 to 8 May 1992 (see document E/CN.16/1993/6, para. 70 (c)), namely, that these panels be encouraged and empowered to also provide advice to all the relevant operational agencies of the United Nations system.

61. As the Commission meets once every two years, the role of the panels of experts in carrying out in-depth examination of priority topics and thus providing substantive input for policy-making would appear to be of the utmost importance.

Notes

1/ See Official Records of the General Assembly, Thirty-fifth Session, Supplement No. 37 (A/35/37), part two, annex, sect. A.

2/ Ibid., resolution 7 (II), annex, para. 1 (d) (ii).

3/ Ibid., Thirty-sixth Session, Supplement No. 37 (A/36/37), part two, annex.

4/ Ibid., Forty-sixth Session, Supplement No. 6 (A/46/6/Rev.1), vol. I, sect. A.